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# Monad Electronics

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# Introduction



## **Winner of National Award for year 2009-2010 in R&D**

Monad Electronics is An ISO 9001:2015 certified company, which has been involved for over 20 year in the business of designing, manufacturing and export of Electronic Industrial products, Testing equipments , sensors and related indicating and controlling devices and allied products related to Data logging & Acquisition.

Monad is specialized in providing high end and high accuracy customized Force Transducers, Multi-Axial Force Transducers and Torque Sensors. Monad is an expert in providing import substitutes of high end Load Cells, Safe Load Indicators, etc

We are supplying to leading industries and government institutions and are also exporting our products to USA, Germany, Belgium, Turkey, Australia, U.A.E., Singapore, Spain, Brazil, New Zealand, Philippines, UK, Croatia and to the African countries.

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## Engine Test Rig

Monad's Engine Test Rig is designed to conduct performance study on Multi Cylinder Diesel engine. The test rig is designed to load the engine and record:-

- # Speed and Torque
- # Fuel Consumption in specified time at specified torque value
- # Engine Friction
- # Exhaust Gas Temperature
- # Cooling Water Temperature

For Evaluation of:-

Engine torque v/s speed characteristics  
Brake Horse Power  
Frictional horse power  
Indicated horse power  
Fuel consumption at rated torque  
Mechanical efficiency  
Thermal Efficiency  
Air fuel ratio

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## Engine Test Rig

The Major System Components :-

Base Plate

Engine

Fuel quantity measurement

Temperature Measurements

Inlet airflow management

Inlet Cooling Water quantity measurement

Coupling between engine and dynamometer

Software

### **Monad's Engine Test Rig Includes Accessories as below:**

a) The dynamometer incorporates the following features:

- # Load cell
- # Temperature sensor
- # Internal wiring
- # Junction box with sockets
- # Magnetic water filter assembly
- # Base plate for mounting dynamometer and engine
- # Propeller shaft (having different size flanges of five nos. set)
- # Pan for static calibration with pan
- # Speed sensor
- # Pressure switch at dynamometer water inlet
- # Internal piping
- # Floating pipe arrangement
- # Common base frame

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## Engine Test Rig

Dynamometer controller with Rpm indicator housed in “3U” rack  
Digital load indicator  
Digital speed indicator (range from 0 to 99999.0)  
Excitation current ammeter  
Open loop control  
Constant speed control mode (N mode)  
Constant torque control mode (T mode)  
N and T control mode  
Dynamometer safeties  
Low dynamometer water inlet pressure cut off  
High dynamometer body temperature cut off  
High excitation current cut off  
Cable loop (15 meter)

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## Engine Test Rig

Digital torque indicator features:

The unit is housed in “2U” rack

Display range 0 to 50.0 Nm

Accuracy  $\pm 0.25\%$  of FSD

Resolution 0.01 Nm

Gravimetric fuel consumption Auto/Manual meter with indicator, suitable for petrol and diesel

Micro controller based unit with serial communication to PC for volume selection for measured time,

This instrument should be in housed rack

Weight mode settings

Set weight range from 10 gm to 500 gm

Solenoid valve, normally closed, energised to open

Red LED display for time

Resolution 0.1 sec.

Time crystal time base